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ABSTRACT

The guide provides strategies for teachers to use with deaf and hearing impaired (HI) students in regular classrooms in the province of Alberta, Canada. An introductory section includes symptoms of a suspected hearing loss and a sample audiogram to aid teachers in recognizing the problem. Ways to meet special needs at different age levels are described relative to early intervention, preschool through high school levels, parental involvement, safety, and physical education. To assist HI students who have language and speech difficulties, suggestions are given in the areas of vocabulary; syntax, such as written language, reading, phonics, oral reading, comprehension, written directions, and speechreading; and in the use of visual aids. Basic strategies for assisting HI students in any classroom are listed according to the following main categories (sample strategies are in parentheses): hearing (check amplification system daily); speechreading (teachers should speak clearly at moderate speed); conversation comprehension (use blackboard outlines in lecture class); speech (write new words phonetically on overhead projector); audiovisual aids (student reads summary before narration of unseen speaker); buddy system (hearing-buddy can provide copy of class notes); and testing (use test normed on a like population). Included are a glossary of 16 terms and instructions for repairing hearing aids. (MC)

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A. RECOGNIZING THE PROBLEM

The terms deaf or hearing impaired denote various degrees of hearing loss: mild, moderate, severe and profound.

Children with severe and profound losses are more obvious to the care-giving adults in their limited response to sound and delay in language learning. They are, therefore, usually diagnosed at early ages. Children with mild or moderate losses may hear enough to develop language at a slower rate than hearing children and can be mis-diagnosed as retarded unless appropriately tested.

There are many children who have mild to moderate fluctuating hearing losses which are undiagnosed. These children have frequent upper respiratory infection or severe allergies. Both these conditions lead to runny noses, weeping eyes and fluid in the middle ear causing a conductive loss. During the periods when the hearing loss exists these students miss a great deal of what is going on around them, particularly in the classroom situation. Over several years these intermittent hearing losses result in delays in various types of reading and language tests.

Teachers must be aware of these students and attempt to ensure that:

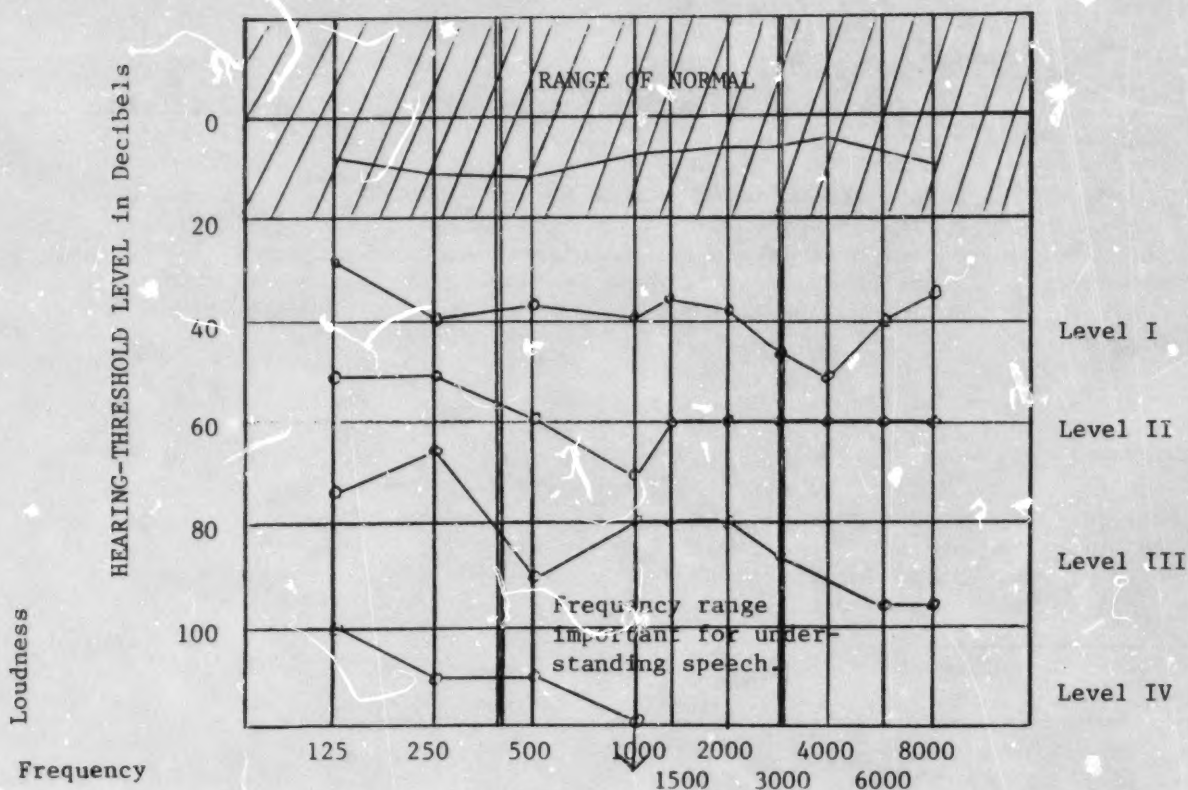
- these students are getting all the medical assistance they need
- remedial tutoring is provided when they are having difficulty keeping up with work.

A hearing loss must be suspected if the student:

- appears to daydream more than is normal and his attention has to be drawn directly to the matter of the moment
- is visually alert but has difficulty following directions from verbal instruction
- depends on "following" along with other students rather than listening and acting independently on the information
- has a language deficit or a speech problem or both
- is an excellent student in mathematics, but struggles with language and reading.

1. Audiogram

The composite audiogram on the following page shows characteristic graphs for each major classification of loss.



- Level I, 25 to 54 dB. Students in this category usually do not require special class/school placement but may require special speech, hearing, and language assistance.
- Level II, 55 to 69 dB. These students occasionally require special class/school placement and usually require special speech, hearing and language assistance.
- Level III, 70 to 89 dB. Those in this category of deafness usually require special class/school placement and also require special speech, hearing, language and educational assistance.
- Level IV, 90 dB and beyond. These students usually require special class/school placement, special speech, hearing, language and educational assistance.

Although these sample audiograms show hearing thresholds for only one ear, each ear should be tested so that a clear picture of the student's impairment is obtained for both ears. All students with a hearing impairment will need help if they are to achieve academically to a satisfactory level. The amount of special help will depend to a large extent on the degree of hearing loss. It must be kept in mind, however, that predictions based solely on audiograms may be misleading.

2. Age of Onset

The earlier in childhood the hearing impairment starts, the more serious is the problem of education. A school age child who loses his hearing will probably have a good knowledge of his native language, be able to speak well, read well and understand abstract concepts. Adequate hearing is the key to acquiring these qualities. The age of onset of the loss is very significant to the education of a hearing impaired child, particularly as it relates to pre-lingual and post-lingual occurrence.

3. Support Services

Many school districts have available to them the services of speech clinicians and some have itinerant teachers of hearing impaired students. It is very important for all members of a team serving a student to communicate clearly and frequently with each other. The teacher must be recognized as the coordinator and most significant person in the student's program. The tutoring and remedial work done by therapists and itinerant teachers must complement the program being provided by the teacher.

For further information or guidance on developing a program to include a hearing impaired student, teachers should contact an Alberta Education Consultant for the Hearing Impaired.

C. MEETING SPECIAL NEEDS AT DIFFERENT AGE LEVELS

1. Early Intervention

The first two years of hearing are very important for learning language and speech. If there is any reason to believe a baby should have a hearing test, an audiologist or a hearing clinic should be contacted. The contact is usually made by the family doctor. The hearing impaired child should have a properly fitted hearing aid and special assistance to help him use what hearing he has to develop language and communication skills.

2. Pre-School

Initial placement should be preceded by consideration of the child's needs and the goals which each program sets. Most preschoolers with a hearing loss attend a speech and hearing clinic and the clinician may well be the most knowledgeable person to recommend a specific program. In addition to the child's developmental and interest levels, the preschool teacher will need to know how the child communicates and how adults and other children normally communicate with him.

Although the responsibilities of the teacher do not really change when a hearing impaired child enters her class, she may find that she has to assume a more active role in structuring the verbal environment and she should maintain close contact with the parents and with the clinician who is working to develop the child's speech and language skills. Liaison with the clinic program is essential and the teacher and parents should attend inservice meetings and case conferences.

By the time the hearing impaired child enters a preschool program he has been taught not only to listen, but also to imitate what he hears so that speaking (even if it often sounds like jargon) will accompany his growth in understanding language. Once he can use one-word utterances, he should be encouraged to increase his memory span and his ability to recall the correct sequence of words in a sentence. If the teacher knows what he is trying to express, she should say the sentence or phrase naturally, encourage him to imitate one word at a time, and then say the phrase again naturally. From a two-unit span, such as "Help me" and "No more", he should move on to a three unit span, e.g. "Put it back", "I want more", "Where's my ball?" and then to a four word span, e.g. "I hear the airplane".

Activities which develop good listening skills will benefit the whole class. Rhythm band, dance and song, nursery rhymes, finger plays, puppet shows, and counting rhymes are some of the activities for which there are attractive materials available. The children must also learn to follow directions, answer questions, and associate sounds with printed symbols.

Some inattention may be anticipated if the hearing impaired child is required to sit for a long period of time listening to a story, a recording, or group discussion without any visual supplements. He should be seated next to the teacher where he can see the pictures in a book or be involved in the subject under discussion. If the child has very little speech or language comprehension it may be necessary to arrange another activity for him, but it is not wise to make too many exceptions.

Most games appropriate for young children have very simple rules. If these rules are translated into simple verbal expressions which the hearing impaired child can learn, he can move toward a more interactive role. If the teacher encourages all of the children to incorporate such expressions as "my turn" and "your turn" into the activity, the hearing impaired child will be assisted in his attempts to use the expressions and to interact appropriately. Knowledge of the child's vocabulary can also be helpful. For example, if the child knows the names of colors, a game using color words offers the opportunity for his active verbal participation.

3. Elementary School

a. Entering Grade One

When a hearing impaired child enters grade one, the teacher should be given all relevant information from preschool teachers, therapists and audiologists. This information should include summary information on teaching techniques which have proven to be successful with the particular child and specific data on progress to date in all developmental areas.

Because of early intervention the hearing impaired child entering grade one may appear to be ahead of his classmates in reading and writing. However, sometime during the first grade the hearing impaired child's classmates often catch up and pass him. Reasons may be that hearing children's vocabularies grow faster; they seem to get more from phonics work and thus can attack words better; and they gather information from outside sources.

At some time in the year, the teacher may report that the hearing impaired student in her class seems to have stopped listening, has become a behavior problem, and is not trying. What has probably happened is that the student is no longer reviewing what he had. He is being presented with new material and is having difficulty understanding the new concepts and new words that are presented so rapidly.

The main challenge in helping these students to be successful lies in a good relationship among the teacher, the parents, and the speech clinician so that difficulties can be spotted quickly and something can be done about them.

b. Upper Elementary Grades

The classroom teacher can help the hearing impaired student improve his written language skills by providing frequent opportunities for writing, e.g. materials such as newspaper cartoons for which the student writes dialogue, language master cards with recorded sentences for the student to listen to and write, and packs of sentence parts (subjects, verbs, endings) which the student constructs into sentences. It will also help a student at this stage to tell a story to his teacher before he writes it. A brief "outline" supplying key words and phrases in chronological order will also help him in writing stories. Written work should be checked and discussed with the student so that he becomes aware of his errors and has an opportunity to correct them.

4. Junior High School

At the junior high school level, vocabularies of hearing impaired students are usually further behind those of their peers than at lower levels. These factors contribute to this problem:

- a. general vocabulary development is slow
- b. vocabulary specialized to one subject becomes important
- c. abstract concepts and aspects of vocabulary are stressed in classroom work.

The problems for hearing impaired students often become serious at the junior high school level. There is exposure to more teachers and an increasing amount of information is given by the lecture method which makes it very difficult for the hearing impaired student to keep up academically.

Additional vocabulary development and exposure to a wide variety of literature forms would enhance the chances of a hearing impaired student's success. Stress on developing study habits, teaching students how to read textbooks, and teaching language and speech skills are important and should be emphasized.

Placement review at the end of each school year is essential. If a student is discouraged by being in a setting which is too difficult for him, his chances for satisfactory adjustment, academically and socially, are limited.

5. Senior High School

The use of alternative support services and the support of a staff aware of the implications of hearing impairment will help to provide the assistance the hearing impaired student in high school requires.

Hearing impaired students who are integrated into upper grade classes that involve dictation, note-taking, and written response can not speechread and/or follow sign language and take notes at the same time. In order to compensate for this difficulty, a note-taking tutor may be used. One of the hearing impaired student's peers could take a carbon copy of the notes and at some time during the day the note-taker can go over the notes with the hearing impaired student.

Some integrated hearing impaired students benefit from the services of an interpreter in regular class presentations. The interpreter should sit close to the hearing impaired student and convey orally or in sign language all that is said by the teacher or fellow-students. The interpreter can also reverse interpret, i.e. speak for a student from his sign language when he is participating in discussion or responding to a question.

6. Parental Involvement

The parents should visit the school regularly so they can assess their child's abilities realistically and participate in the program. A "home and school" notebook is a good way to keep informed and share the concepts being taught.

Members of the family should reinforce, through home stimulation, the vocabulary and concepts encountered in school. The emphasis should be on useful, idiomatic language and natural conversation revolving around attitudes, activities, and interest of the hearing impaired child. The parents are key figures in helping the child to develop his skills and affording the child a total educational experience. They should be encouraged to duplicate some teaching techniques at home, e.g. label objects. Parents will vary in their ability to cope with these challenges and to follow recommendations.

7. Safety Considerations

The teacher should stimulate hearing impaired students to develop an increased visual awareness of potential hazards, e.g. traffic, because of their greater vulnerability to accidents.

a. Fire Alarms

For their own safety and protection, hearing impaired students should be made aware of visual warning devices. Emergency instructions over the public address system may not be understood.

If a hearing impaired student has a loss of such severity that he does not hear the fire alarm, the teacher must ensure that the student trains himself to be visually aware of an emergency situation. Although other students can be instructed to alert a hearing impaired student, it must be remembered that in moments of excitement students may forget to carry out instructions.

b. Field Trips

While on a field trip care should be taken to ensure that instructions and information are communicated clearly to the hearing impaired student.

Hearing impaired students may require a greater degree of supervision and special provisions, e.g. in a wilderness situation a hearing impaired student should be accompanied by a "buddy" and be given a whistle. Should he become lost he can blow the whistle repeatedly and wait in that spot; hearing rescuers can then find him.

c. Physical Education

Hearing impaired students may remove their hearing aids for certain activities making them less able than normal to use audition as a protective sense. Safety rules should be carefully explained to hearing impaired students, acting out the dangerous and the safe procedures if possible.

See Living/Vocational Skills section on Safety for further details.

D. ASSISTING WITH LANGUAGE AND SPEECH DIFFICULTIES

The most significant problem in the education of hearing impaired students is in the area of communication skills. Since language is learned through the senses, hearing impaired students are likely to have a deficiency in receiving language and/or in using it correctly. The hearing impaired student, because of his hearing loss, does not easily receive the constant feed-in of vocabulary, sentence structure and speech sounds as do students with normal hearing.

The most common kinds of language errors of the hearing impaired student are vocabulary deficiencies, word order and grammatical variations of words, e.g. plurals, possessives, verbs.

Hearing loss also affects the student's articulation, i.e. how he says something. Speech misarticulations and omissions, particularly of the ends (s), (es), (-t) and (-ed) are often evidenced in his speech and in his written language. Correction of speech problems should always be considered in the broad terms of language development.

Examples:

- a. "She talk__ during the entire class." The final (ed) was omitted from talked because the student with a hearing loss in all likelihood did not hear the (t) sound.
- b. "Harry think__ he'll play football next fall." The final (s) was omitted from the word thinks because the student with a hearing loss did not hear the (s).

1. Vocabulary

Vocabulary is often learned through context directly from a speaker. A person with normal hearing is exposed to various words many times in numerous ways and events, and although he may at first be unsure of their meaning, he can generally say the words and gradually perceive their meanings and how to use them correctly. A hearing loss makes it difficult to accurately perceive the spoken word thus making new vocabulary acquisition difficult.

The student with a hearing loss, particularly without special instruction, may have the following problems with vocabulary more often than the student with normal hearing:

- a. Using only one meaning for a word. Example: "I just opened a charge account" (relatively familiar); "On account of you, I missed my bus" (less familiar).
- b. Learning to comprehend metaphoric usage. Examples: "a closely knit family" may conjure up an image of yarn around the family; "a price freeze" implies a coldness.
- c. Developing related words. For example, expanding walk to include trot, stagger, canter, saunter.
- d. Taking idiomatic expressions literally. An expression such as "cut it out" may bring only a puzzled expression because he does not after all have a pair of scissors. "She has him wound around her finger" may bring a mental image of someone wrapped clumsily but tightly around fingers.
- e. Grasping words or sentences denoting or requiring the attachment of meaning to an auditory event such as a whisper. For example, a student may never have experienced a whisper. The rustle of leaves may not be loud enough for the hearing impaired student to perceive though wearing a hearing aid and will, therefore, have little meaning.
- f. Understanding function words, i.e. words which convey no meaning except in context, such as then, so, because of, in spite of, however, but, etc. They are both very hard to hear and to speechread. The student is, therefore, only learning these words from the printed page, a very artificial learning experience.
- g. Interpreting similar sounds. For example, he may confuse bluff with blush.
- h. Multiple meanings. In science he may sometimes need to expand his concept of cells to mean "jail", and tissues to beyond meaning "something to blow his nose with". If he gives a particularly unusual response or asks a question which appears to be totally unrelated it may be that he drastically misunderstood some vocabulary.

2. Syntax

The patterns of any language are learned by hearing them. Because the student with a hearing loss is penalized in this way, he often learns faulty sentence structure and usage. For example, the student may say "Then she looked at around her brother", or "The girl runned, too". Artificial learning is reflected in these sentences. In the first sentence the structure is close to correctness; it is similar perhaps to what one would experience in learning a foreign language if there had not been much exposure to listening to it. In the second sentence, the pattern is correct, but the tense usage reflects memorization or lack of it.

Ideas on Helping the Student with a Hearing Loss

- a. One way to help correct word order errors is to repeat verbally correct patterns as often as possible making sure that the student with a hearing

loss is attending by watching and is close while the teacher is speaking so he gets maximum benefit from his hearing aid (fifty centimeters to one meter is optimal).

- b. Expanding what the student says, e.g. if he describes something but does it very concretely, the teacher should offer him more descriptive words or delineate words both to improve his vocabulary and to enhance his syntactical structure. Likewise, if he uses very simple sentence structure, it should be accepted but something slightly more complex used so that the student will pick up more complete structure. For example, if the student says "My dad gave me a piece of paper to get filled at the _____, you know, where you buy medicine", the student should be given words "prescription" and "drugstore" by incorporating them into correct sentence usage, "Oh, your dad asked you to get a prescription" "You went to the drugstore?" "Did you get anything besides the prescription?". The student here has been offered the new vocabulary words "prescription" and "drugstore" at least three times in good statement and question form. The student is not necessarily expected to use the words "prescription" and "drugstore" right then, but may perhaps by answering one of the questions.
- c. Writing another meaning for a word or phrase in brackets above or below the new words or phrase.
- | | | |
|-------------------|----------------------------|-----------------------|
| (because of you) | (Egypt of a long time ago) | (tell about) |
| On account of you | Ancient Egypt | Describe the monument |

3. Written Language

The written language level of the student with a hearing loss may be below that of other students for any of one or more reasons. Whatever his current skills, he should be helped to build his writing skills.

A first inclination may be to excuse the hearing impaired student from certain writing tasks, because of the effort it is for him. However, practice is important for the development of any skill. He should be expected to try to write whatever is asked of the other students, making certain only that he understands the assignments.

Written work turned in by the hearing impaired student should be corrected as soon as possible as uncorrected errors only reinforce incorrect language. Depending on the level of the student and the manner in which corrections are made for the other students, different types of corrections might be used. For example, the teacher could set up a code of corrections and just note them in the margin which saves the student's writing from being marked up with red.

4. Reading

Young students in the early grades who have just come from a special class for the hearing impaired initially may appear to be better readers than their classmates because they have been exposed to the written words for many years. Much of their reading, however, has been sight reading. The student has often not learned word attack skills. Therefore, as these students encounter new and unfamiliar structures, they may have more difficulty than some of their classmates in unlocking new words and ideas.

5. Phonics

The hearing impaired student often has problems with the phonetic section of reading workbooks and spelling series. He may find it difficult to distinguish between vowel sounds, between two similar consonants, or among the short vowel sounds; for example:

bed	bid	(distinguishing between two short vowels)
bed	nead	(distinguishing between long and short sounds auditorily)
moon	noon	(two similar consonants).

Word endings, since they are not usually heard by the hearing impaired student, are also difficult; for example:

s	es	z	bus	buses	boys
ed	d	t	chatted	loud	laughed

The following directions will be difficult for the hearing impaired student to master:

- "Write the sounds you hear";
- "Tell if the word you hear has a long or short vowel sound";
- "Write the sound you hear at the end of each word";
- "Circle the syllable which is the same as the one you hear".

6. Oral Reading

The most ideal seating arrangement for a reading lesson is a semi-circle with the teacher in the centre. The hearing impaired student should be seated close to the teacher where he can also see her lips. A semi-circle will also enable the hearing impaired student to see and hear the other students.

If this type of seating is impossible, the teacher should ask a "buddy" to pull his desk right next to the hearing impaired student to show him the place periodically. Another aid would be to have the student who is reading stand at the front of the room in front of the hearing impaired student's desk. In this way, both visual and auditory cues are presented by the student who is reading.

A hearing impaired student should be expected to read orally as often as any other student in the class even if his speech may be difficult to understand. Depending on the student's hearing loss, he may have to detect accent by having the teacher tap lightly on the table or on his arm. The accented syllable is then tapped harder than the unaccented; for example:

pen cil um brel la

The student should be shown that the meaning of a sentence can be changed by changing the word that is emphasized, for example:

I do not want you to go home.
I do not want you to go home.
I do not want you to go home.

When a hearing impaired student demonstrates difficulty understanding the meaning of a word, the teacher should try using some of the following ideas:

- a. Give several definitions for each new vocabulary word, for example:
fall - to go down
fall - autumn
Give as many meanings as possible and appropriate.
- b. Put vocabulary words into a sentence. Write at least one sentence for each meaning. In this way the student can see how it is used in the context. For example:
Trees are beautiful in the fall.
- c. Give a synonym, for example:
effect - outcome
Use the word in a sentence with the synonym in parenthesis, for example:
What effect (outcome) will this red paint have on my mother's white sofa?
- d. Use a negative definition, for example:
cold - not hot
- e. Use a general term to give a specific meaning, for example:
a type of run - job
- f. Explain vocabulary context by rewriting at a lower level, for example:
The (automobile) (utilizes) (petroleum products).
The (car) (uses) (gasoline).
- g. Use pictures or illustrations to show as many meanings as possible. This may seem concrete, but is sometimes necessary.
- h. Dramatize the meaning of a concept. Use other students in the class to act out the word or situation.

7. Comprehension

Some language related problems encountered by hearing impaired students in comprehension of reading tests or workbooks are:

- a. Expletives, i.e. words or phrases which in and of themselves have no concrete meaning, e.g.
There are six more candy bars to be given away.
It is obvious he has no intention of coming.
- b. Words or phrases denoting relationships, e.g.
 - (1) Time phrases - long ago; the year before last, next time. Many of these time phrases use indefinite terms, the exact time is not indicated, therefore, they are not concretely oriented.
 - (2) Cause-Effect - He was tired, so he went to bed. Often, these will be seen as two separate ideas. The fact that one caused the other may not be understood.
 - (3) Sequencing - Reading a paragraph or a story and lining up either sentences or pictures in the order in which they occurred. The student may not see the relationship of one fact, so he may have difficulty perceiving the sequence.
 - (4) Pronoun Antecedents - e.g. The girls played until dark, then they went home. John caught the ball. It was large.
The student may have difficulty seeing the abstract relationship between "they" and "girls" and "it" and "ball". Since "John" and "it" are both in the first position, the child may see "it" as referring to "John".

- (5) Making Inferences - e.g. "Hello", said John, "my name is John Nolan and I live down the street."

Was John a close friend of the person to whom he was talking? The hearing impaired student may not be able to infer an abstract idea from several ideas.

- c. Drawing conclusions. The teacher may ask the class, "What do you think will happen to each of the characters?". The student may not be able to project to the future. This requires taking both concrete facts and abstract ideas gathered from the story and applying them to imagined abstract ideas.
- d. Determining the main idea of a paragraph or story. This requires combining abstract ideas and concrete facts gained from the story and determining which one or which combination of these express the abstract idea the paragraph or story is telling the student.
- e. Picking out key words in a sentence. Usually the most important idea from the preceding sentence must be known and these meanings are applied to the sentence in question to determine which word or words are the most important.
- f. Summarizing the thought of a paragraph or a story. This requires using the abstract ideas and concrete facts acquired from the story and combining these into a shorthand form.
- g. Employing context clues, e.g.: Bill sat on the steps of a house. A man came up to Bill and asked, "Boy, is your mother at _____?".

8. Written Directions

Workbook directions may be particularly difficult for a hearing impaired student. He may misunderstand the sentence structure or not comprehend the vocabulary employed in directions. The following underlined words may not be comprehended by the hearing impaired student:

- a. Compare the reaction of Mary and Helen when they discovered the money.
- b. Describe the characteristics of John in the above story.
- c. Capitalize and punctuate this sentence.

A hearing impaired student may do only one part of a two or three part direction for he has read and understood the first part and ignored the remainder not knowing what the semi-colon or the sentence structure means, e.g.:

- a. Underline the correct definition; then use the vocabulary word in a sentence.
- b. Complete the sentence with the correct word that you have chosen from last week's vocabulary list.
- c. Find a synonym for each word in the column at the left; write a sentence for each synonym.

9. Speechreading

Students with a hearing loss supplement their residual hearing with speechreading. Important points to consider about speechreading:

- a. It is important to have an adequate speechreading environment so that the student can benefit from optimum visual cues, e.g. the light to his back, an unobstructed view and avoidance of continuous movement by the teacher around the classroom.
- b. A student may miss short words which will drastically change the meaning of what was said, e.g. "It is time for the movie" vs. "It is not time for the movie", or "The President signed the bill" vs. "The President didn't sign the bill".
- c. The student may become confused when he misses words that are formed alike, e.g. "He rode his bike to school" vs. "He rode his pig to school", or "He hit the peg with the hammer" vs. "He hit leg with the hammer".
- d. Most students will have difficulty when they are required to speechread long sections of material, such as lengthy stories read or told by the teacher, long explanations or long and detailed directions, or oral reports given by classmates.
- e. It will be difficult for the student to follow class discussions. The student should be allowed a choice of seat where he can see many of his classmates speaking. Speakers should identify themselves visually before they begin to speak and it would be helpful if the teacher would repeat what was said.
- f. If a hearing impaired student fails to understand what is said to him, the teacher should first repeat exactly what was said. If he still does not understand the second time what was said, it should be rephrased.
- g. If the student still does not understand what was said after it has been repeated and rephrased, occasionally it may be necessary to write out the word or sentence causing the difficulty for the student to read. Immediately after doing this, what was said should be repeated so the student has a chance to finally speechread the word or sentence.

10. Classroom Visual Aids

- a. An overhead projector is an excellent aid for classes with hearing impaired students. Some of the advantages are:
 - (1) The teacher is facing the students;
 - (2) Classroom lights can be left on so the hard-of-hearing or deaf students can speechread;
 - (3) Words that are difficult to speechread can be written on the transparency; the students will therefore not miss them;
 - (4) Definitions for new class vocabulary can be written on the transparencies;
 - (5) Transparencies can be prepared ahead of time;
 - (6) Commercial transparencies can be used when available for subject matter being taught.
- b. Films are difficult for hearing impaired students. While both deaf and hard-of-hearing students can see what is actually on the screen, most films include narration for which there is no visual section. Hard-of-hearing students may be able to understand the sound track to some degree. When films are used as a teaching tool, the following suggestions might help all students:
 - (1) A teacher prepared outline of the main points of the film - outline useful later for review;
 - (2) References for reading material which contain the same basic information as the film;

- (3) A catalogue description of the film whenever available;
- (4) Suggestions specifically for the hard-of-hearing student:
 - (a) if possible, the student should be allowed to preview the film
 - (b) the student should be able to choose optimal seating for the film, e.g. near the loudspeaker, near the screen or wherever the student feels he is getting maximum auditory or speech-reading cues.
- c. Filmstrips that use a record player or tape recorder will present the same difficulties for hearing impaired students as films. All suggestions regarding films made in the previous section are applicable to sound filmstrips.
- d. Tape recorded information or records will be impossible for deaf students to follow. Some hard-of-hearing students may be able to follow tapes and records. If there is some doubt, the teacher should ask the student to repeat something said on the record. Just asking him whether he understands may well produce a yes; even some deaf students will indicate they hear what is being said. A script or written copy of recorded work will be a great help to the hard-of-hearing or deaf student. If these are not available, an outline will help.
- e. Opaque projectors present some difficulties for hard-of-hearing and deaf students because the room has to be darkened for its use. Any explanations offered of the material while the room is in such darkness will be missed by the hearing impaired student. When the opaque projector is used, the explanation should be recapped when the lights are on again.

E. BASIC STRATEGIES FOR ASSISTING HEARING IMPAIRED STUDENTS IN THE CLASSROOM

1. Hearing

- a. Any amplification system being used should be checked daily (see Troubleshooting the Hearing Aid, Appendix B).
- b. Environmental noise should be controlled as much as possible allowing the meaningful signal (usually the teacher's voice) to come in clearly to the hearing aid.
- c. The teacher should remember that hearing aids do not "correct" hearing loss. No hearing aid is completely free of distortion. The teacher should not shout at a hearing impaired student; this simply distorts the sound of the voice in his aid. A clear carrying tone should be used.
- d. The teacher should remember that a hearing loss can fluctuate. Following a cold or ear-ache the hearing impaired student may hear less well than he normally does. Some allergies also impair hearing on a temporary basis.
- e. If the student has a "better ear" for sound reception, he should be seated so that he can use his ear to best advantage.

2. Speechreading

- a. The teacher should speak clearly at a moderate speed, and not over-articulate or mumble.
- b. The teacher should not speak with her back to the class, e.g. when writing on the blackboard.
- c. A student who is dependent on speechreading should not be expected to take notes. A "buddy" should be used.

- d. When reading to the class, the teacher should do so in such a way that her face is clearly visible and not obscured by the book.
- e. The teacher should try to stand still while talking.
- f. If group discussion is part of the class procedure, the student should be seated so that he sees the teacher's face and the faces of the other students. Some method of identifying the speaker visually should be used.
- g. The teacher should not stand with her back to the window since her face will be in shadow and the student will be looking directly at bright light.

3. Conversation Comprehension

- a. If a question or direction is not understood by the hearing impaired student, it should not be repeated in the original form. The verbal message should be presented in simpler vocabulary or word order.
- b. New vocabulary should be introduced in advance of lessons which require comprehension of new words. A vocabulary list given to the student a few days ahead will enable him to get help from a parent or tutor.
- c. A list of topics to be covered in the term ahead is helpful to a tutor preparing a hearing impaired student to cope in regular classes.
- d. Blackboard (or overhead projector) outlines are very helpful in a lecture type of class.
- e. Spelling words should be included in meaningful carrier sentences as many words look alike on the lips when said individually.
- f. The teacher should remember that some classmates may be hard to comprehend. If something significant is reported by another student the teacher may have to repeat the highlights for the hearing impaired student.

4. Speech

- a. Good production should be expected from the hearing impaired student. Some students produce speech of a lower standard than they are capable of unless better production is expected.
- b. If possible, the teacher should visit a student's therapy session to become aware of standards expected by the speech clinician, and new sounds the student is receiving.
- c. The teacher should call certain types of repeatedly faulty speech to the attention of the speech clinician.
- d. New words should be written out phonetically on an overhead projector or blackboard as well as words the hearing impaired student misses habitually.
- e. Hearing impaired students should be informed of the quality of their voices - speech proficiency and competency; otherwise they eventually face embarrassing situations when they discover that their speech is incomprehensible and unintelligible.

5. Audio-Visual Aids

- a. If the public address system is used frequently, the teacher could write the announcements on the blackboard.
- b. If film, filmstrip, slides or opaque projectors are in use, equipment which can be used in near normal lighting conditions is recommended.

- c. If there is narration from an unseen speaker, the hearing impaired student would benefit from reading the script or a summary ahead of time.

6. Buddy System

A hearing buddy, usually a classmate, can be helpful in assisting a hearing impaired student. A buddy can, for example:

- repeat information presented over the P.A. system
- provide a copy of class notes
- ensure that the hearing impaired student has correct assignment and examination dates.

The use of a buddy system has other incidental values. It increases safety, and it facilitates social interaction between the hearing impaired student and his hearing peers.

If one of the duties of the buddy is note-taking, then the buddy should be an above average student and have good spelling and handwriting skills. The buddy can use pressure-sensitive type paper, carbon paper or photocopying equipment.

Some caution should be employed in using the buddy system technique. Students who participate should regard this activity as both a privilege and a responsibility. Only reliable students who are willing and able to perform this function should be elected. The involvement of these students should not become so engrossing that their own academic work or social activity suffers.

The hearing impaired student also must assume some responsibilities in the buddy system. He should not be too demanding, ask for help graciously, refuse help politely when it is not required, and show appreciation appropriately.

Care should be taken that an appointed buddy not become overly responsible and protective of the hearing impaired student. This can be prevented by changing the buddy occasionally. Buddies should also understand that they are assisting the hearing impaired student towards independence.

7. Testing

Evaluation of all aspects of performance is essential for appropriate program planning. Prior to any academic assessment taking place, a thorough evaluation of the student's hearing and hearing aid and, where indicated, an assessment of visual functioning should occur. When testing a hearing impaired student the following points should be kept in mind:

- a. The degree of hearing loss must be taken into consideration. Where a mild to moderate loss exists, and where the hearing impaired student is being educated with hearing peers, the assessment device norms should be the same as those used with the hearing classmates. In addition, all integrated students should be encouraged to write all examinations used in the classroom, including those required by the Student Evaluation Branch.

- b. For the severely and profoundly hearing impaired, assessments normed on a like population should be used. Where such norms are not available for the assessment used, care must be exercised in interpreting results. Assessments normed on a deaf and hearing impaired population include the Stanford Achievement Test (Hearing Impaired version), the Weschler Intelligence Test for Children (Revised Edition), and the Hiskey Nebraska Test of Learning Aptitude.

For further information on appropriate assessment instruments and strategies to be used with deaf students, teachers should seek advice from an Alberta Education Consultant for the Hearing Impaired.

- c. To evaluate performance in curricula areas for the purpose of program planning, teacher developed criterion referenced tests are recommended. Testing should be arranged in such a way that the hearing impaired student is being tested on the subject matter and not on communication skills. Orally presented tests can become merely exercises in speechreading; tests requiring oral answers may be a test of speech intelligibility.
- d. Abstract and non-visual ideas should be presented carefully and comprehension checked by asking for a paraphrase of the concept in the student's own words, not the same ones as those used by the teacher. Asking for appropriate but different examples of a concept is another way of checking understanding.
- e. Where permitted, prior to the assessment beginning, examples should be used to clarify the test requirements. All assessments should be administered in the communication mode most familiar and comfortable to the student.

APPENDIX A

GLOSSARY

Adventitious Hearing Loss

- a hearing loss which occurs after birth through accident or illness.

Audiogram

- a graph that provides a picture of the amount of hearing. The hearing level is recorded in decibels (loudness) for each frequency (pitch) tested.

Audiology

- a profession that involves the science of hearing.

Audiologist

- an individual qualified to test hearing and make recommendations concerning the use of hearing aids.

Audiometer

- an instrument used to test hearing.

Bilateral Hearing Loss

- hearing loss in both ears.

Conductive Hearing Loss

- result of reduced conduction of sound through the outer and/or middle ear to the inner ear. This type of hearing loss is primarily a medical problem which, in the majority of cases, can be cleared by treatment.

Congenital Hearing Loss

- a hearing impairment which exists at the time of birth.

E.N.T. Specialist

- a medical doctor who specializes in the diagnosis and treatment of ear, nose and throat conditions.

Hearing Impairment

- a. prelingual deafness refers to the condition of students whose deafness was present at birth or occurred at an age prior to the development of speech and language.
- b. postlingual deafness refers to the condition of students whose deafness occurred at an age following the spontaneous acquisition of speech and language.
- c. a deaf student is one whose hearing is disabled to an extent that precludes the understanding of speech through the ear alone, with or without the use of a hearing aid.
- d. a hard-of-hearing student is one whose hearing is disabled to an extent that makes difficult, but does not preclude, the understanding of speech through the ear alone, with or without a hearing aid.

Itinerant
Teacher

- a visiting teacher who provides tutoring and resource/information for integrated students, and consultation for school personnel and parents (see Special Education Handbook section, Working with Support Staff).

Mixed
Hearing Loss

- a combined conductive and sensory-neural hearing loss.

Sensory-Neural
Hearing Loss

- this type of hearing loss is often referred to as nerve deafness. These hearing impairments cannot be cured by medical treatment, but may be partially compensated for through special education and use of amplification.

Speech
Clinician

- a professional who assesses, diagnoses and remediates communicative disorders involving receptive and expressive language.

Teacher of
the Deaf

- a teacher who has specialized in educational programming for hearing impaired students (see Special Education Handbook section, Working with Support Staff).

Unilateral
Hearing Loss

- hearing loss in one ear only.

APPENDIX B

TROUBLE-SHOOTING THE MALFUNCTIONING HEARING AID

The following problems may be encountered in the day-to-day management of a student with a hearing aid.

1. Squeal or Feedback

This problem generally results from a poorly fitted, or improperly inserted, earmold. Sound leading out of the ear is picked up by the hearing aid microphone, causing the feedback. It may also occur in the case of a powerful torso-worn hearing aid if the instrument is worn too close to the receiver. This is acoustic feedback.

- a. Check to be sure the mold is inserted properly.
- b. Remove the aid from the ear and with volume nearly full on, place a fingertip over the earmold opening. If the squeal stops, the problem is in the earmold fit; it needs replacement.
- c. If the aid still squeals excessively, remove the earmold from the receiver, and place the fingertip over the receiver opening. If the squeal stops, the problem is in the coupling of the earmold to the receiver. New washers may solve the problem. If not, the coupling may be worn on either the earmold, receiver, or both. Replacement of the parts may be necessary.
- d. If, when a fingertip is placed on the receiver opening, feedback continues, the problem may be mechanical feedback within the body of the aid, or resonance from the receiver case. Your hearing aid dealer should be consulted.
- e. Repositioning of the hearing aid and harness may be necessary in order to obtain adequate isolation of the receiver from the microphone. (For example, if the receiver is in the left ear, the aid may need to be worn at a point low and to the right of the torso.)

2. Dead Aid. No sound at all.

- a. Check the battery, or try a new one. Note that the plus and minus signs on the hearing aid battery should correspond with the plus and minus signs in the battery compartment of the hearing aid. If the battery contacts in the battery compartment appear to be corroded, they can be cleaned or polished with an emery board or a small piece of sandpaper.
- b. Check the microphone-telephone switch. In the M, or microphone position, the instrument will operate normally and will respond to all sounds within its range. When set to the T, or telephone position, the instrument will respond only to sound transmitted over a telephone when the instrument is held near the telephone receiver or when within range of a classroom induction loop system. Some hearing aids have a combination TM setting which allows the use of both modes at the same time.

A dead hearing aid can also be caused by a lack of familiarity with the controls on the hearing aid. Make sure all of the switches are in the correct position.

- c. Check the cord. Place the receiver in your ear and with the aid turned on, gently move and roll the cord between your fingertips. This should be done at two points - near the receiver and near where the cord plugs into the hearing aid. A broken cord will be characterized by intermittent functioning of the aid when this manoeuvre is done.
- d. Check the earmold. If the mold is plugged with earwax, it can be cleaned effectively with warm, soapy water and a pipecleaner. Care should be taken that no water remains in the sound conducting hold in the earmold or in the tubing that connects the earmold to some hearing aids. Alcohol should not be used to clean armolds as it will dissolve some plastics. Denture cream may be used effectively.
- e. If none of the above efforts restore function, return the instrument to the dealer.

3. Weak or Distorted Sound

- a. Check the battery or try a new one. Check the battery contacts.
- b. Inspect earmold and tubing for partial plugging.
- c. Check tone controls and volume controls. If the output of the aid is weak and fairly constant as control is advanced a dirty volume control is often to blame. This requires cleaning and servicing.
- d. Modern hearing aids are designed to withstand a wide range of temperature extremes. However, exposure to extremely cold temperatures will temporarily reduce the efficiency of transistor amplifiers and mercury batteries. When the instrument is warm, it will function properly.

4. Intermittent Functioning

- a. Check the cord as above.
- b. Rotate volume and tone controls. Dirty controls may cause the problem. If this is the cause, the aid should be cleaned and serviced.
- c. Inspect battery contacts.
Parents should provide replacement cords and spare batteries for each child's hearing aid. In addition, the teacher can maintain a supply of pipecleaners and an emery board of sandpaper for cleaning batteries and battery contacts and earmolds. A battery tester is often useful to have.

Some severely and profoundly impaired students will be fitted with F.M. auditory trainers. They consist of a receiver worn by each student and a cordless transmitter/microphone worn by the teacher. This system has several desirable features:

- mobility on the part of the teacher and student is unlimited
- each student receives the signal directly from the teacher's microphone, thus making optimum use of residual hearing
- modern F.M. systems have rechargeable battery power systems
- separate volume controls are provided for each ear
- the transmitter worn by teachers has an effective range greater than 15 m outdoors.